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ing *Rhus* in Canada. His illustration looks exactly like our gall, except that it is larger, but the figure has probably been enlarged. At the bottom of the plate it is stated to be on *Rhus cotinus*, but on page 90 it is assigned to *R. typhina*, which is much more likely.

Eriophyes rhois Stebbins, from Massachusetts, forms a quite different gall on *Toxicodendron toxicodendron* (*Rhus toxicodendron* Linn.).

T. D. A. COCKERELL

UNIVERSITY OF COLORADO

SEX-LIMITED INHERITANCE

TO THE EDITOR OF SCIENCE: In view of the recent interest in the question of the relation of sex to the barring factor in poultry, an hypothesis for which was presented by Spillman¹ in 1908, and the demonstration of which has been brought forward by Goodale² and by Pearl and Surface³ and others, the following reference to a breeding experiment carried out by Samuel Cushman at the Rhode Island Agricultural Experiment Station in 1892 may be pertinent at this time.

Cushman made a large number of crosses between pure-bred fowls with the purpose of perfecting a good market roaster and capon. Among his crosses were the following:

Indian Game \times Light Brahma.
 Indian Game \times Houdan.
 Indian Game \times Golden Wyandotte.
 Indian Game \times Buff Cochin.
 White Wyandotte \times Light Brahma.
 White Wyandotte \times Indian Game.
 Houdan \times Partridge Cochin.
 Silver Gray Dorking \times Dark Brahma.
 Silver Dorking Game \times Dorking.
 Plymouth Rock \times Buff Cochin.
 Indian Game \times Plymouth Rock.

In Cushman's published results⁴ he gives a brief description of the progeny resulting from these crosses and, regarding the Indian Game \times Plymouth Rock cross, states that

¹ *Am. Nat.*, 1908, XLII, 50.

² SCIENCE, N. S., 1909, XXIX., 756. *Proc. Soc. Exper. Biol. and Med.*, 1910, 7, 5.

³ Maine Agric. Expt. Station Bulletin 177, 1910.

⁴ *Ohio Poultry Journal*, 1893, II., 7, 185-191.

the *cockerels* were between Indian Game and Plymouth Rock in shape; that the combs resembled those of the Indian Games, and that the plumage was like that of the Plymouth Rocks. He states further that the *pullets* were all black and more like the Indian Game in shape. This is the clear statement of the observed facts of a case of sex-limited inheritance.

PHILIP B. HADLEY

R. I. AGRICULTURAL EXPERIMENT STATION,

KINGSTON, R. I.,

October 18, 1910

CORRESPONDENCE IN REGARD TO THE LENGTH OF SERVICE PENSIONS OF THE CARNEGIE FOUNDATION

GARRISON-ON-HUDSON, N. Y.,

November 8, 1910

PRESIDENT CHARLES F. THWING, LL.D.,

*Secretary of the Board of Trustees
 of the Carnegie Foundation for
 the Advancement of Teaching.*

Sir: In the fourth annual report of the Carnegie Foundation for the Advancement of Teaching, the action of the trustees in connection with the withdrawal of the retiring allowances for length of service is reported by you as follows:

The rules as thus amended provide a retiring allowance for a teacher on two distinct grounds: (1) to a teacher of specified service on reaching the age of sixty-five; (2) to a teacher after twenty-five years of service in case of physical disability.

Although these are the general rules governing retirement, the trustees are nevertheless willing to grant a retiring allowance after the years of service set forth in Rule 1 [Rule 2?] to the rare professor whose proved ability for research promises a fruitful contribution to the advancement of knowledge if he were able to devote his entire time to study or research; and the trustees may also grant a retiring allowance after the years of service set forth in Rule 1 [sic] to the executive head of an institution who has displayed distinguished ability as a teacher and educational administrator.

President Jordan has printed in the *N. Y. Evening Post* the resolutions adopted by the trustees as follows:

It was also on motion, duly made and seconded,

resolved that first, the executive committee be instructed to safeguard the interests of the following classes of cases: (a) those who have research work in view and have shown themselves unmistakably fit to pursue it; (b) those whose twenty-five years of service includes service as a college president; and (c) those in whose mind a definite expectation has been created by official action that they will be accorded the benefit of the foundation within the year 1910; and that, secondly, the executive committee be authorized to formulate regulations in accordance with these instructions.

This statement seems not to agree with the resolution which the trustees are said to have adopted. According to the resolution professors who have shown themselves unmistakably fit to pursue research work are entitled to retire, whereas you speak of the "rare professor." According to the resolution all presidents may retire, whereas according to your statement they must have displayed distinguished ability. According to the resolution the right to retire was continued through 1910, whereas no reference is made to this in your report.

In view of these discrepancies I venture to ask whether the resolution passed by the trustees was correctly given by President Jordan and for permission to make public your reply.

Respectfully,
J. McK. CATTELL

PRESIDENT'S ROOM
WESTERN RESERVE UNIVERSITY
ADELBERT COLLEGE
CLEVELAND

11 November, 1910

My dear Mr. Cattell: Let me thank you for your note of November eighth. I find, on referring to my minutes, that the question which you ask can be more comprehensively and definitely answered by President Pritchett than by me. I am, therefore, sending your letter to him with a copy of this note to you.

Believe me, with much respect and regard,
Ever yours,
CHARLES F. THWING

Mr. J. McK. Cattell,
Professor, etc.

GARRISON-ON-HUDSON, N. Y.,
November 8, 1910

DR. HENRY S. PRITCHETT, LL.D.,
*President of the Carnegie Foundation
for the Advancement of Teaching.*

Sir: I venture to ask the ruling of the Carnegie Foundation for the Advancement of Teaching as to whether I shall be entitled to retire for length of service in 1913, when I shall have served for twenty-five years as full professor of psychology, three years at the University of Pennsylvania and twenty-two years at Columbia University. I do not know that I shall wish to do so, but since the announcement of the rules of the foundation, I have regarded it as a privilege to which I am entitled and have shaped my plans accordingly.

The resolution passed at the last annual meeting of the trustees, as printed by President Jordan in the *N. Y. Evening Post*, continues the privilege of retirement for length of service to "those who have research work in view and have shown themselves unmistakably fit to pursue it." The Fourth Annual Report does not print the resolution of the trustees, but says: "The trustees are nevertheless willing to grant a retiring allowance after the years of service set forth in Rule 1 to the rare professor whose proved ability for research promises a fruitful contribution to the advancement of knowledge if he were able to devote his whole time to study or research."

I assume that I should be entitled to retire according to the resolution passed by the trustees, though I have no claim to be classed as a "rare professor." It seems difficult to reconcile the two statements quoted, and in any case it is not clear how the executive committee will decide on the merits of professors or that it is desirable for it to exercise such a function.

For the guidance of my colleagues as well as my own I consequently address this letter to you and ask that I be permitted to make public your reply.

Respectfully,
J. McK. CATTELL

THE CARNEGIE FOUNDATION
FOR THE ADVANCEMENT OF TEACHING
576 FIFTH AVENUE
NEW YORK

OFFICE OF THE PRESIDENT

November 21, 1910

Dear Professor Cattell: I am sorry that your letter of November 8 has remained so long unanswered. It came just as I was preparing for the annual meeting of my board of trustees, and I have had no opportunity to take up my correspondence until to-day.

As you can readily understand, the foundation does not undertake to say what will be done in the matter of an application for a retiring allowance to be made two years hence. The rules state with precision the normal conditions under which teachers may expect retirement and the executive committee will, of course, be governed by these rules. I understand your letter, however, to be an expression of a wish to ascertain what procedure is necessary on your part in order to apply for a retiring allowance as an exceptional case on the ground of a desire to devote your life to research.

Using your own case as an illustration, the procedure would be as follows:

You would first take the matter up with your university. If the university approved your request, it would present an application to the foundation on your behalf for a retiring allowance on the ground of special proved ability for scientific research. The foundation would ask that this request be accompanied by a statement showing your research work for the past ten or fifteen years. It would then submit this statement to a number of recognized scholars in your field of science with two enquiries: (1) What is your opinion of the value of the research work of Professor Cattell as indicated in the enclosed papers? (2) Is this work of such a character as, in your judgment, to warrant the conferring of a retiring allowance upon Professor Cattell in order that he may give himself unreservedly to the work of research? The foundation would be in large measure guided

in its decision by the opinions received from these scholars.

I ought to add that the foundation would view with grave concern the possibility of your withdrawal from editorial duties. We should find it difficult to get along without the aid of your kindly and encouraging editorial scrutiny.

Yours very truly,

HENRY S. PRITCHETT

Professor J. McKeen Cattell,
Garrison-on-Hudson,
New York.

GARRISON-ON-HUDSON, N. Y.,

November 23, 1910

PRESIDENT HENRY S. PRITCHETT, LL.D.,

*The Carnegie Foundation for the
Advancement of Teaching, New
York City*

Sir: Your letter seems to indicate that you do not propose to follow the resolution which, according to President Jordan, the trustees adopted. You do not explain this departure or answer the question which I addressed to the secretary of the trustees and which he referred to you for reply. You doubtless intend to make a statement and an explanation of the policy of the foundation in your forthcoming report. It is extremely desirable that these be such that the foundation may regain the confidence and respect of those for whose benefit it was established.

Your last paragraph is presumably only legitimate irony; but it is open to the unfortunate interpretation that beneficiaries of the foundation may not criticize its conduct or the educational schemes it promotes.

Respectfully,

J. MCK. CATTELL

THE CARNEGIE FOUNDATION

FOR THE ADVANCEMENT OF TEACHING

576 FIFTH AVENUE

NEW YORK

November 26, 1910

OFFICE OF THE PRESIDENT

Dear Professor Cattell: President Thwing has referred to me your letter of November 8.

The language given in the first paragraph

of your letter is taken from the printed rules for retirement as formally adopted by the trustees and published in the Fourth Annual Report. There is a misprint, as you point out, in which Rule I. stands instead of Rule II.

The extract printed by President Jordan was taken from the minutes of the annual meeting and contained simply additional instructions of the trustees to the executive committee for their guidance in administering the rules as adopted. These general instructions to the committee directed them that in the administration of Rule II. in its revised form the executive committee was given such discretion as would enable the committee to vote retiring allowances in the cases of those who have shown marked fitness for research, of those whose twenty-five years of service include noteworthy presidential or other administrative work in a college or university, and of those who had made definite preparation for early retirement under the old rule.

I may add that in the past year the committee has had very few applications upon the first mentioned ground. Whenever such applications have been made, the committee has sought to ascertain through the scientific associates of the applicant a fair estimate of his research ability. No applications have as yet been approved by the committee upon the second ground mentioned. A retiring allowance asked upon the third ground has been voted by the committee in each case in which the applicant had actually announced his prospective retirement to the college authorities or had really modified his plans to take advantage of retirement within the next few years. I think this answers fully your enquiry.

Very truly yours,

HENRY S. PRITCHETT

Professor J. McKeen Cattell,
Garrison-on-Hudson,
New York

QUOTATIONS

MEDICAL RESEARCH

IN his speech, which we reported yesterday, at the inaugural meeting of the Oxford

Branch of the Research Defence Society, Lord Cromer remarked with much truth and point that the mere name of the society in whose behalf he was appealing "carried with it to some extent an implied reproach on the state of public opinion in this country." Medical research needs, or ought to need, no defence. On the other hand, for the sentiment which would impede its progress by disowning all experiments on living animals no defence is logically possible, unless those who entertain it are prepared to maintain that no possible advantage to mankind can justify experiments on animals which may cause them pain and often result in their death. It is this thesis which really needs defence, and not the pursuit of medical research even by means of vivisection. Dr. Osler went straight to the point when he said: "The question was this—Were they justified in using animals to gain a knowledge of the cause and cure of disease? A majority of thoughtful people maintained that they had the right, and they must employ vivisection, taking care that the animals suffered a *minimum* of pain." There are doubtless many people who will dispute all these propositions and deny, first, that we are justified in using animals to gain a knowledge of the cause and cure of disease; secondly, that a majority of thoughtful people recognize the existence of any such right; and, thirdly, that the practise of vivisection is necessary to the exercise of that right. Some of them, indeed, would probably go so far as to deny that the pursuit of medical research by means of vivisection has materially increased our knowledge of the cause and cure of disease.

We would speak with due respect of those who entertain these opinions, but we can not pretend to agree with them. Those who hold that we are not justified in using animals to gain a knowledge of the cause and cure of disease must hold, if they are logical and consistent, either that we are not justified in killing animals at all, or that in killing them we must inflict no pain that can be avoided. In the former alternative they must abstain from